



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

May 11, 2004

MEMORANDUM

SUBJECT: Final Determination for SAB Consultation on Valuation of Mortality Risk Reduction

FROM: Holly Stallworth, Ph.D. */Signed/*
Designated Federal Officer
Valuation of Mortality Risk Reduction Consultative Panel
EPA Science Advisory Board Staff Office (1400F)

THRU: Daniel Fort */Signed/*
Ethics and FACA Policy Officer
EPA Science Advisory Board Staff Office (1400F)

TO: Vanessa T. Vu, Ph.D.
Director
EPA Science Advisory Board Staff Office (1400F)

This memorandum outlines the process and steps taken in response to the request from the National Center for Environmental Economics (NCEE) for a consultation on the valuation of mortality risk reduction (Project 04-22). This final determination memorandum provides background on the consultative topic, the charge to the panel, and a review of the conflict of interest issues identified for this consultative panel.

A. Background and Charge to the SAB

Health risk valuation is an integral component of the economic analyses performed by EPA as recognized in its *Guidelines for Preparing Economic Analyses* released in 2000 by the NCEE. Risk reduction values are part of the benefits of any environmental policy under consideration and, as such, demand the most rigorous and up-to-date approaches available. However, because economic research on valuing health risks is rapidly evolving, new information and approaches have become available since the release of the *Guidelines*. NCEE is in the process of revisiting current estimates and methods used for

health risk valuation as discussed in the NCEE document entitled “Value of Statistical Life Analysis and Environmental Policy: A White Paper” at <http://yosemite.epa.gov/EE/epa/eerm.nsf/vwRepNumLookup/EE-0483?OpenDocument>.

The charge to the SAB consists of the following sets of questions.

I. Literature support for a revision of the current Guidelines for valuing changes in fatal risk.

In 1999, the Science Advisory Board - Environmental Economics Advisory Committee reviewed the draft *Guidelines for Preparing Economic Analyses*. The *Guidelines* state that the Agency would continue to conduct periodic reviews of the risk valuation literature and revise the Guidelines accordingly, under advisement from the SAB. Though the literature has grown since the publication of the 2000 *Guidelines*, the Agency’s practice of valuing changes in fatal risks has largely been unchanged. Does the literature support a revision of the current Guidelines for valuing fatal risk changes?

II. Questions on the important strengths and limitations of the available literature and how these factors be accounted for in practice.

- A. The Background Paper summarizes several EPA commissioned reports that document methodological concerns underlying VSL studies that use hedonic wage equations, contingent valuation surveys, and averting behavior methods. What are the important practical lessons EPA can draw from these reports, and how should these be used to evaluate literature to be used by EPA?
- B. To what extent is it scientifically appropriate for the Agency to use VSL estimates from unpublished studies and studies from developing countries in developing mortality risk valuation policy?

III. The risk valuation literature has grown substantially since the 1999 Guidelines were published.

EPA has questions about what is the most scientifically appropriate way for EPA to aggregate the literature in updating its mortality risk valuation policy. There are a number of alternatives to consider:

A. Current Practice (fitting a distribution)

EPA *Guidelines* recommend using a distribution of VSL estimates based on 26 studies from the literature. A Weibull distribution was fit to the set of estimates, yielding a central estimate of approximately \$6.1 million. Is this sort of “curve fitting” a preferred methodology for

deriving a distribution of VSL values for use in economic analyses of EPA regulations?

B. Meta-analyses:

(i) There are three widely-circulated meta-analyses of VSL estimates that are recent contributions to the literature. Is meta-analysis the preferred methodology for deriving VSL values for use in economic analyses of EPA regulations?

(ii) The white paper summarizes three widely-circulated meta-analyses of VSL estimates that appear to be generally regarded as high quality. These analyses differ in their selection criteria, the scope of studies they consider, and their technical approach to combining existing VSL estimates. In general, what are the relative strengths and weaknesses of each study in regards to application to EPA policy analyses? Does one of these studies emerge as a preferred candidate for VSL estimates for EPA policy analyses?

(iii) Each of the three studies use different criteria to select estimates to include in the analysis (e.g., only HW studies, HW and CV studies). Are there particular selection criteria that should be required in any meta-analysis used by EPA for policy analysis?

(iv) Similarly, each of the studies uses different statistical techniques to calculate their VSL estimates. For example, some studies rely on regression techniques, whereas others fit a particular distribution to the data. What approach should EPA use for calculating VSL estimates for policy analysis?

(v) Each of the meta-analyses manipulates the original data to some extent. For example, some studies adjust for after-tax wages, whereas others do not. Is there a set of such manipulations that the SAB believes to be critical for any metaanalysis? Are there some data manipulations that are generally incompatible with sound meta-analysis?

(vi) How should a quality meta-analysis handle zero or negative VSL estimates from studies that otherwise meet its selection criteria for inclusion?

(vii) If the Agency relies upon multiple meta-analyses to estimate VSL for policy analysis, how can the different meta-analyses most rigorously and appropriately be combined given that they use different statistical procedures, and overlapping, but not identical sets of studies?

- C. Are there other alternatives methodologies EPA should consider for aggregate the literature in updating its mortality risk valuation policy?

IV. The characteristics of risks and populations addressed in the VSL literature are often different from those addressed by EPA policies.

The SAB has addressed some of these questions concluding that the only empirically feasible adjustments to a base VSL are (1) discounting over periods of latency and cessation lag, and (2) increasing VSL over time to account for rising real income.

- A. Does the literature continue to support empirically accounting for these effects in policy analysis?
- B. Does the literature support empirically accounting for other risk and population characteristics in transferring existing VSL estimates to the analysis of EPA policies?

IV. Empirical analysis is always limited by data constraints.

The analysis by Black, et al., for example, highlights the impact of existing data limitations in hedonic wage studies. EPA is interested in hearing from the SAB-EEAC members on how the Agency might assist research through efforts to make data more available.

- A. Can useful analytical gains be made through low-cost improvements in data quality or increased data availability? What steps can EPA and other government agencies take in the short term to facilitate research through improved data quality or increased accessibility to existing data sets?
- B. The SAB recently reviewed EPA's draft Environmental Economics Research Strategy and provided advice regarding research needs for mortality valuation as part of that review. Given the additional information provided to the committee for this review, do SAB members wish to identify any additional research needs or provide any modifications to their recent advice?
- C. What do members of the SAB see as the most fruitful, long-term strategies for overcoming the challenges of using the existing literature for environmental policy analysis?

B. SAB Consultative Panel on the Valuation of Mortality Risk Reduction

The SAB Consultative Panel on the Valuation of Mortality Risk Reduction will be composed of members of SAB's Environmental Economics Advisory Committee (EEAC) along with one member of the Advisory Council on Clean Air Compliance Analysis. Collectively, these members have the breadth of expertise needed in non-market valuation, estimation of public health benefits, risk analysis and econometrics. Dr. Maureen Cropper, Chair of the EEAC, will also serve as Chair of the consultative panel. Attachment 1 is a roster of this panel.

A *Federal Register* Notice announcing the Consultative Panel on Mortality Risk Reduction meeting on May 13, 2004 was published on April 22, 2004 and can be found at: <http://www.epa.gov/fedrgstr/EPA-SAB/2004/April/Day-22/sab9143.htm>. It is also provided as Attachment 2.

C. Conflict of Interest Reviews

Members of any SAB Committee meet the legal definition of an "employee" because they serve as Special Government Employees (SGEs) and, as such, are subject to conflict of interest laws as follows. During the selection process for this SAB Panel, each candidate was required to submit the Financial Disclosure Form for Special Government Employees and to take the SGE ethics training course found at http://www.epa.gov/sab/sge_course/index.htm. The Science Advisory Board Staff Office has evaluated each member in light of the conflict of interest considerations below.

1) Does the charge involve conflicts of interests in a particular matter?

Under 18 U.S.C. 208, all employees, including SGEs, are prohibited from participating substantially in any particular matter that has a direct and predictable effect on their own financial interests or the financial interests of others with whom they have certain imputed relationships. For this criterion to be met, the SGE's participation in the particular matter must have a **close causal link** to their financial interest. Further, the link must be predictable, that is, **actual** and not **speculative**.

In selecting candidates for the Consultative Panel, the SAB Ethics and FACA Policy Officer and the Deputy Ethics Official, after reviewing each candidate's confidential financial disclosure forms, have concluded that neither condition is met. The chain of causation is **attenuated** and contingent upon the occurrence of events that are **speculative**. In particular, the rules for a Consultation specify that the Committee be involved in early, oral advice that does not require consensus. This work typically precedes EPA's more definitive determinations on particular technical issues. In addition, the Committee will be reviewing a range of documents that characterize technical options on the economic analysis of mortality risk reduction.

Dr. Anna Alberini, a member of the SAB Panel, will be presenting her work on valuing mortality risk reduction. This work was funded by EPA, however this does not constitute a conflict of interest because of the nature of an SAB Consultation in which

non-binding discussion and oral debate is allowed. Dr. Alberini's presentation and reflections will constitute her own specific advice and will not be considered an official SAB opinion. This same interpretation applies to the other individuals of the Consultative Panel who may also present their advice and views.

2) Do members present an appearance of impartiality?

Members of the Panel have also been evaluated under the requirements for considering an appearance of the lack of impartiality under 5 C.F.R. 2635.502(a). This regulation states that, “Where an employee knows that a particular matter involving specific parties is likely to have a direct and predictable effect on the financial interest of a member of his household, or knows that a person with whom he has a covered relationship is or represents a party to such matter, and where the person determines that the circumstances would cause a reasonable person with knowledge of the relevant facts to question his impartiality in the matter, the employee should not participate in the matter unless he has informed the agency designee of the appearance problem and received authorization from the agency designee.”

The Panel's charge does not focus on the interests of specific persons or entities or an identifiable class of persons or entities and therefore does not meet the "specific party" provision. Moreover, the lack of a direct and predictable link between any SGE action on this subcommittee and his or her financial interests would preclude a reasonable person with knowledge of the relevant facts from questioning his or her impartiality in the subcommittee's work. Furthermore, additional information for this evaluation comes from each member's confidential financial disclosure forms, specific interviews and from information from public comments and other staff research. During the candidacy of each member, the SAB Ethics and FACA Policy Officer and the Deputy Ethics Official concluded that there would not be an issue of an appearance of a lack of impartiality as defined under 5 CFR 2634.502.

Concurred,

/Signed/ 05/11/04

Vanessa T. Vu, Ph.D.
Director
EPA Science Advisory Board Staff Office

Attachment 1

U.S. Environmental Protection Agency Science Advisory Board Consultative Panel on the Valuation of Mortality Risk Reduction

CHAIR

Dr. Maureen L. Cropper, Lead Economist, The World Bank, Washington, DC

MEMBERS

Dr. Anna Alberini, Associate Professor, Department of Agricultural and Resource Economics - AREC, University of Maryland, College Park, MD

Dr. Dallas Burtraw, Senior Fellow, Resources for the Future, Washington, DC

Dr. James Hammitt, Professor of Economics and Decision Sciences, Department of Health Policy and Management, School of Public Health, Harvard University, Boston, MA

Dr. W. Michael Hanemann, Professor, Department of Agricultural and Resource Economics, University of California, Berkeley, CA

Dr. Gloria Helfand, Associate Professor of Environmental Economics, School of Natural Resources and Environment, University of Michigan, Ann Arbor, MI

Dr. Arik Levinson, Associate Professor, Economics Department, Georgetown University, Washington, DC

Dr. James Opaluch, Professor, Department of Environmental & Natural Resource Economics, College of the Environment and Life Sciences, University of Rhode Island, Kingston, RI

Dr. Stephen Polasky, Fesler-Lampert Professor of Ecological/Environmental Economics, Department of Applied Economics, University of Minnesota, St. Paul, MN

Dr. Kathleen Segerson, Professor, Department of Economics, University of Connecticut, Storrs, CT

Dr. Hilary Sigman, Associate Professor, Department of Economics, Faculty of Arts and Sciences, Rutgers University, New Brunswick, NJ

Dr. V. Kerry Smith, University Distinguished Professor, College of Agriculture and Life Sciences, North Carolina State University, Member of Advisory Council on Clean Air Compliance Analysis, Raleigh, NC

SCIENCE ADVISORY BOARD STAFF

Dr. Holly Stallworth, Designated Federal Officer, Environmental Protection Agency, 1025 F Street, NW, Washington, DC, Phone: 343-9867 (stallworth.holly@epa.gov)

Attachment 2

[Federal Register: April 22, 2004 (Volume 69, Number 78)]
[Notices]
[Page 21829-21830]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr22ap04-53]

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ENVIRONMENTAL PROTECTION AGENCY
[FRL -7652-4]

Science Advisory Board Staff Office; Environmental Economics
Advisory Committee of the Science Advisory Board; Review of Upcoming
Projects and Consultation on Mortality Risk Reduction Notification of a
Public Advisory Committee Meeting

AGENCY: Environmental Protection Agency (EPA).
ACTION: Notice.

SUMMARY: The Environmental Protection Agency (EPA), Science Advisory Board (SAB) Staff Office is announcing a public meeting of the SAB's Environmental Economics Advisory Committee (EEAC). The EEAC will convene to review upcoming project requests and to offer a day long consultation on the methods for the valuation of mortality risk reduction.

DATES: May 12-13, 2004. The meeting will take place on Wednesday, May 12, 2004 from 12:30 p.m. until approximately 5 p.m. eastern time, and on Thursday, May 13, 2004 from 9 a.m. until approximately 4 p.m. eastern time.

MEETING LOCATION: The meeting will be held at the Science Advisory Board Conference Center located at 1025 F Street, NW., Suite 3705, Washington, DC 20004.

FOR FURTHER INFORMATION CONTACT: Any member of the public wishing further information regarding this meeting may contact Dr. Holly Stallworth, Designated Federal Officer (DFO), via telephone/voice mail at (202) 343-9867, via e-mail at stallworth.holly@epa.gov, or by mail at U.S. EPA SAB (MC 1400F), 1200 Pennsylvania Ave., NW., Washington, DC, 20460. General information about the SAB can be found in the SAB Web site at: <http://www.epa.gov/sab>.

SUPPLEMENTARY INFORMATION:

Background

EPA's National Center for Environmental Economics (NCEE) has requested the SAB conduct a consultation on ways to improve the metrics for the valuation of mortality risk reduction associated with EPA

actions. The valuation of mortality risk reduction is an integral part of the economic analyses performed by EPA as recognized in its Guidelines for Preparing Economic Analyses (2000). However, because economic research on valuing health risk reductions is rapidly evolving, new information and approaches have become available since the release of the Guidelines. EPA is in the process of revisiting current estimates and methods used for valuing health risk reductions and plans to revise the Guidelines accordingly. This task is part of EPA's commitment to evaluate and revise components of EPA's Guidelines for Preparing Economic Analyses (2000) and to consult with the SAB as it does so.

The SAB was established by 42 U.S.C. 4365 to provide independent scientific and technical advice, consultation, and recommendations to the EPA Administrator on the technical basis for Agency positions and regulations. The SAB EEAC will conduct the requested consultation and will comply with the provisions of the Federal Advisory Committee Act (FACA) and all appropriate SAB procedural policies, and will report to the chartered SAB.

The SAB's EEAC will conduct the consultation on May 13, 2004. A roster of EEAC members, their biosketches, and the meeting agenda will be posted on the SAB Web site at: <http://www.epa.gov/sab> prior to the meeting.

Availability of Meeting Materials

A copy of the draft agenda for the meeting that is the subject of this notice will be posted on the SAB Web site prior to the meeting. Other materials that may be made available for this meeting may also be posted on the SAB Web site in this time-frame.

Procedures for Providing Public Comments

It is the policy of the SAB Staff Office to accept written public comments of any length, and to accommodate oral public comments whenever possible. The SAB expects that public statements presented at the meeting will not be repetitive of previously submitted oral or written statements. Oral Comments: In general, each individual or group requesting an oral presentation at a face-to-face meeting will be limited to a total time of ten minutes (unless otherwise indicated). Interested parties should contact the DFO in writing (e-mail, fax or mail--see contact information above) by close of business May 4, 2004 in order to be placed on the public speaker list for the meeting. Speakers should bring at least 35 copies of their comments and presentation slides for distribution to the participants and public at the meeting. Written Comments: Although written comments are accepted until the date of the meeting, written comments should be received in the SAB Staff Office at least one week prior to the meeting date so that the comments may be made available to the panel for their consideration. Comments should be supplied to the DFO at the address/contact information noted above in the following formats: one hard copy with original signature, and one electronic copy via e-mail (acceptable file format: Adobe Acrobat, WordPerfect, Word, or Rich Text files (in IBM-PC/Windows 95/98 format). Those providing written comments and who attend the meeting are also asked to bring 35 copies of their comments

for public distribution.

Meeting Accommodations

Individuals requiring special accommodation to access this meeting, should contact the DFO at least five business days prior to the meeting so that appropriate arrangements can be made.

Dated: April 16, 2004.

Vanessa T. Vu,
Director, EPA Science Advisory Board Staff.

[FR Doc. 04-9143 Filed 4-21-04; 8:45 am]